

Abstract

The present invention relates to materials for cathode in solid oxide fuel cells, more particularly, an oxide having high oxygen vacancies and high conductivity as cathode, which is able to accelerate absorption of oxygen molecule and diffusion of oxygen ion for reducing internal resistance of cells, in other words, reducing overpotential of cathode, and improvement of electric generation efficiency of fuel cells. General form of the cathode materials is $\text{Ln}_{1-x}\text{A}_x\text{Cu}_{1-y}\text{B}_y\text{O}_{2.5\pm\delta}$, wherein Ln is lanthanide ion, A is alkaline-earth metal, B is metal. Cathode dope different alkaline-earth metal on A side to converse partly copper (Cu) to trivalence copper ion for forming perovskite having oxygen vacancies with regularity sequence, by utilizing catalytic of cathode electrode accelerating cathode reaction and compound electron being conducted though external circuit with conversing oxygen to form oxygen ion for obtaining anode and hydrogen reaction by diffusing oxygen ion to electrolyte.